United States Department of Agriculture

NRCS Natural Resources Conservation Service

**Composting Facility:**

# Composting Swine Mortality

***Alabama Job Sheet No. AL317A***

**Definition**

Composting of swine mortality has proven to be an acceptable process, especially for smaller swine. A composting facility is a roofed structure with primary and secondary composting bins. The composting process uses a simple mixture of carbonaceous material (which might include poultry litter, wood chips, or straw), swine carcasses or parts, and water. After a complete composting process, the material can be land-applied according to a nutrient analysis of the finished compost.

**Operation and Maintenance**

Recipe

Follow the recipe carefully to insure that the process is working well. Ingredients may be substituted and varied on a trial basis to improve the composting process.

Hints

1. Adjust the moisture in the carbonaceous material before adding the carcasses. The material should be moist but not dripping wet. Material kept moist and aerated will have a higher initial temperature to begin the composting process.

2. A 5-gallon bucket of dry carbonaceous material will weigh about 16 to 18 pounds. One gallon of water weighs 8.34 pounds

3. The nitrogen content of poultry litter and recycled swine compost is high enough that additional nitrogen will not be required. If sawdust alone is used for the carbonaceous material, uniformly sprinkle about 1 pint of ammonium nitrate fertilizer on each 50 pounds of carcass.

| **Recipe** |
|---|
| Swine Or Swine Parts Weighing Up To 50 Pounds<br><br>1.0 Pound Carcass<br>1.5 Pounds Carbonaceous Material<br>.25 To .50 Pounds Water*<br><br>Swine Or Swine Parts Weighing Up To 100 Pounds<br><br>1.0 Pound Carcass<br>2.0 Pounds Carbonaceous Material<br>.35 To .65 Pounds Water*<br><br>Swine Weighing Over 100 Pounds<br>1.0 Pound Carcass<br>2.5 Pounds Carbonaceous Material<br>.40 to .65 Pounds Water*<br><br>* If the mix is already moist, this water may not be needed. |

Basic Operating Procedures

1. Prepare a mat of carbonaceous material at least 12 inches deep in the bottom of the bin about two days before adding carcasses. Wet the mat as needed. This should begin to preheat before adding animal carcasses.

2. Place carcasses in a single layer on the preheated mat, add water as needed, and completely cover the carcasses with the correct amount of carbonaceous material. Insure that all parts of a carcass are covered with at least 6 inches of carbonaceous material at all times. Do not place any carcass parts within 12 inches of the bin sidewalls. Do not overload a composter. Excessive mortality should be buried, incinerated, or hauled to a rendering plant. If burial is used, see Alabama NRCS guide sheet, Emergency Disposal of Dead Animals, No. AL 316.

3. Continue this layering process until a bin is full, with the final layer of carbonaceous material being 12 inches thick. Monitor temperatures in the bin as it is filling. A 36-inch probe type thermometer is ideal for this purpose. Temperatures should exceed 130°F for 5 days. They may be as high as 160°F. Do not stack the mixture over 5 feet high or a fire is possible (see Alabama NRCS guide sheet, Preventing Fires in Litter Storage Structures, No. AL 313). NOTE: If a bin does not properly heat, it may be too wet or too dry, or was filled improperly. Correct dryness by turning the mixture into an empty bin and adding water as it is turned. Mixtures that are too wet will attract excessive numbers of flies, have a strong odor, leak large amounts of liquid from the bottom of the bin, and will appear rotten. Correct this by turning into an empty bin and combining with dry carbonaceous material.

4. It is suggested that swine up to about 100 pounds stay in the primary bin about 60 days after it is filled. Heavier feeders, sows, gilts, and boars may have to stay in the primary bin at least 90 days after the last carcass is placed.

5. After the prescribed time, the primary bin compost should be turned and placed into a secondary bin. Special attention may be required to cover partially composted animal parts which become exposed after turning in order to provide the required 6 inches of cover. Water will usually need to be added in the turning process to moisten the compost mix and cause the compost to go through a second heat.

6. After 90 to 120 days in a secondary bin, the material should be ready for land application. Compost should be applied according to agronomic rates for specific cropping systems as described in Alabama NRCS conservation practice standard, Nutrient Management, Code 590. Even after the secondary stage of composting, some of the larger bones such as the skull and leg bones will not be completely decomposed. They may or may not be friable enough to be spread by manure spreading equipment. The producer may want to remove the bones by hand and return them to the composter to undergo another composting cycle or dispose of them by another method.

## Cautions

Swine composting involves large carcasses and bones, and careful monitoring is needed to ensure success. All swine production operations should be prepared to occasionally dispose of some swine in a legally prescribed manner, such as burial, incineration, rendering, or other approved method, as described in Alabama NRCS guide sheet, Emergency Disposal of Dead Animals, No. AL 316.

## References

NRCS AL Conservation Practice Standards
- Composting Facility - Code 317
- Nutrient Management – Code 590

NRCS AL Job Sheets:
- Emergency Disposal of Dead Animals - AL316
- Preventing Fires in Litter Storage Structures - AL313



3/09

# COMPOSTING SWINE MORTALITY WORKSHEET

**Land User:** _____ **County:** _____ **Date:** _____

**Farm No.:** _____ **Tract No.:** _____ **Assisted By:** _____

Annual mortality from swine operation:

Number of swine weighing up to 50 pounds: _____

Number of swine weighing 50 to 100 pounds: _____

Number of swine weighing 100 pounds or more: _____

Estimated amount of compost produced annually: _____ Bins _____ Tons _____ Cubic feet

Estimated total cycle time for primary and secondary composting? _____ Months

Type of carbonaceous material to be used in composter:

Sawdust _____ Poultry litter _____ Wood Chips _____

Other_____

Estimated amount of carbonaceous material required annually: _____ Tons

Are there provisions for keeping the carbonaceous material moist and aerated? Yes ____ No ____

Method of applying water to the compost mix: _____

Will additional nitrogen be required to be added to the compost mix? Yes ____ No ____

Method of handling excess mortalities (See Job Sheet 316 – Emergency Disposal of Dead Animals):

Burial ____ Incineration ____ Rendering ____ Other _____

If by burial, is the burial site preapproved: Yes ____ No ____

Method for monitoring temperature: _____ in. probe type thermometer Other _____